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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,174

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Chuanzhong Wei

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EXAMINER

BOESEN, AGNIESZKA

ART UNIT

PAPER NUMBER

1648

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,174	<b>Applicant(s)</b> WEI ET AL.	
	<b>Examiner</b> Agnieszka Boesen	<b>Art Unit</b> 1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The Amendment filed February 11, 2008 in response to the Office Action of September 11, 2007 is acknowledged and has been entered. Applicant's amendment to the specification and to the abstract and the submission of a sequence listing are acknowledged. Claims 1-5 have been amended and are under examination in this Office Action.

#### ***Claim Objections***

Objection to claims 3-5 because the claims referred to sequences identified in I, II, III, and IV without the recitation of SEQ ID NO is **withdrawn** in view of Applicant's amendment.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The ground of rejection with regard to the recitation of "corresponding uniquely" in claim 1 is **withdrawn in view of Applicant's amendment**.

However a new ground of rejection is made in view of Applicant's amendment. **Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant amended the claims to recite the limitation "predetermined pattern". The specification does not define this term "predetermined pattern" and the metes and bounds of the new limitation "predetermined pattern" cannot be determined. Correction is required.

The ground of rejection with regard to the lack of recitation of SEQ ID NOs **is withdrawn** in view of Applicant's amendment.

The ground of rejection with regard to the recitation of “thick” in claims 2-5 **is withdrawn** in view of Applicant's amendment.

The ground of rejection with regard to the recitation of “abnormal configurations” in claim 2 **is withdrawn** in view of Applicant's amendment.

### ***Claim Rejections - 35 USC § 102***

Rejection of claims 1-5 under 35 U.S.C. 102(b) as being anticipated by Wohlstadter et al. (US Patent 6,673,533 B1) **is withdrawn** in view of Applicant's amendment.

However a new rejection is made in view of Applicant's amendment and in view of newly found prior art.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wohlstadter et al. (US Patent 6,673,533 B1) in view of O'Connor et al. (WO200257789-A2).**

Wohlstadter teaches a piezoelectric biochip, comprising an electrode and the microelectrode array, wherein the detection agents such as antibodies against prion protein are directly immobilized onto the electrode (see claims 1, 7-9, 30, and 53, column 22, lines 11-36,

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and 49-64, column 76, lines 65-67, and column 77, lines 1-12) Because Wohlstadter teaches the piezoelectric biochip wherein detection agents are antibodies against prions, Wohlstadter teaches piezoelectric biochip for the detection of the bovine spongiform encephalopathy (BSE) pathogen.

While Wohlstadter teaches using anti-prion antibodies immobilized on the piezoelectric biochip, Wohlstadter does not teach an anti-prion antibody binding specifically to SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, or SEQ ID NO: 4. However all sequences of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, and SEQ ID NO: 4 are present within the prion protein and therefore one would have expected that Wohlstadter's anti-prion antibodies would bind to SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, and SEQ ID NO: 4. Thus it would have been obvious that Wohlstadter's antibodies would bind sequence within the prion protein. Additionally an antibody specifically binding to SEQ ID NO: 1 has been known in the art at the time of the present invention. O'connor teaches an antibody binding SEQ ID NO: 1 present within the prion protein (see page 15). Thus, the skilled artisan would have been motivated to provide antibodies binding prion protein and use these antibodies for detection of prions on a piezoelectric biochip.

With regard to the limitation of "a 1-1000 nm thick layer of PrP antibodies immobilized on each of the electrodes", the skilled artisan would have immediately envisioned that Wohlstadter's antibodies attached to the piezoelectric biochip would form a layer of 1-1000 nm thick. Considering a broad range of 1-1000 nm with regard to the layer of the antibodies, Wohlstadter's antibodies should most definitely fit in the range recited in the present claims.

Thus the present invention would have been *prima facie* obvious at the time when the invention was made.

*Response to Applicant's arguments*

Applicant argues that Wohlstadter does not disclose all the elements of the present claims, because the binding/reaction domains in Applicant's claims are not located between the electrode pair as required by Wohlstadter. In response to Applicant's arguments, the Office points out that while the binding/reaction domain of the present claims is not located between the electrode pair as required by Wohlstadter, Wohlstadter teaches all the elements of the piezoelectric biochip required by the present claims. Thus the Wohlstadter's reference is cited in the new rejection under 35 U.S.C. 103(a) above.

***Conclusion***

No claims are allowed.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agnieszka Boesen whose telephone number is 571-272-8035. The examiner can normally be reached on Monday through Friday between 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell can be reached on 571-272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agnieszka Boesen, Ph.D./  
Examiner, Art Unit 1648

/Stacy B. Chen/ 5-12-2008  
Primary Examiner, TC1600